No. 200500213

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Syngenta Seeds, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BEAN, FIELD

'Topaz R'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of Washington, D.C. this nineteenth day of September, in the year two thousand and five.*

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions* — Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER
Syngenta Seeds, Inc.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
ROG123R

3. VARIETY NAME
Topaz R

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
600 N. Armstrong Place
Boise, ID 83704

5. TELEPHONE *(include area code)*
208-322-7272

6. FAX *(include area code)*
208-327-9319

FOR OFFICIAL USE ONLY

PVPO NUMBER
200500213

FILING DATE
April 15, 2005

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
Corporation

8. IF INCORPORATED, GIVE STATE OF INCORPORATION
DE

9. DATE OF INCORPORATION
February 25, 1975

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*
Charleen Orthel
Syngenta Seeds, Inc. - Vegetables
600 N. Armstrong Place
P.O. Box 4188
Boise, ID 83704

FEES RECEIVED
FILING AND EXAMINATION FEES:
$ 3652.00
DATE 4/15/2005
CERTIFICATION FEE:
$ 682.00
DATE 8/12/05

11. TELEPHONE *(Include area code)*
208-327-7246

12. FAX *(Include area code)*
208-327-9319

13. E-MAIL
charleen.orthel@syngenta.com

14. CROP KIND *(Common Name)*
Dry Edible Bean

16. FAMILY NAME *(Botanical)*
Leguminosae

15. GENUS AND SPECIES NAME OF CROP
Phaseolus vulgaris

17. IS THE VARIETY A FIRST GENERATION HYBRID?
☐ YES ☒ NO

18. DOES THE VARIETY CONTAIN ANY TRANSGENES? ***(OPTIONAL)***
☐ YES ☒ NO
IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERICALIZATION. _____

19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED
(Follow instructions on reverse)
a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of Variety
d. ☒ Exhibit D. Additional Description of the Variety *(Optional)*
e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
g. ☒ Filing and Examination Fee ($3,652), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*
☐ YES *(If "yes", answer items 21 and 22 below)* ☒ NO *(If "no", go to item 23)*

21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES?
☐ YES ☐ NO
IF YES, WHICH CLASSES? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☐ NO
IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS.
NA FOUNDATION NA REGISTERED NA CERTIFIED
(If additional explanation is necessary, please use the space indicated on the reverse.)

23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☒ YES ☐ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☐ YES ☒ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER		SIGNATURE OF OWNER	
Charleen Orthel			
NAME *(Please print or type)*		NAME *(Please print or type)*	
Charleen Orthel			
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
Registration Specialist	14 Apr. 2005		

(See reverse for instructions and information collection burden statement)

ST-470 (04-03) designed by the Plant Variety Protection Office using Word 2002

INSTRUCTIONS

200500213

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for $3,652 ($432 filing fee and $3,220 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice.)* Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of $432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office
Telephone: (301) 504-5518
FAX: (301) 504-5291
Homepage: http://www.ams.usda.gov/science/pvpo/pvp.htm

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that name has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, 10301 Baltimore Avenue, Suite 401 NAL Building, Beltsville, MD 20705. Telephone: (301) 504-5682 http://www.ams.usda.gov/lsg/seed.htm.

ITEM

19a. Give:
(1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified

19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, *etc.*

19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

20. If "Yes" is specified *(seed of this variety be sold by variety name only, as a class of certified seed)*, the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. *(See Regulations and Rules of Practice, Section 97.103).*

23. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*

24. *See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.*

22. CONTINUED FROM FRONT *(Please provide a statement as to the limitation and sequence of generations that may be certified.)*

23. CONTINUED FROM FRONT *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)*

See attached page

24. CONTINUED FROM FRONT *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)*

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)*

Shipping History
TOPAZ R

200500213

mat_material_desc	del_shipping date	del_qty_lb	shp_country	shp_state	Purpose
PT ROG123R					
PT ROG123R					

No seed of PT ROG123R (TOPAZ R) has been released, or sold in the US or foreign country.

Dry Edible Pinto Bean

'ROG123R'

Exhibit A

Origin and Breeding History

The objective in the development of Syngenta Seeds, Inc. 'ROG123R' in the pinto market class of dry edible beans was to transfer the Ur11 rust gene from the donor parent 'BelDakMi-RMR-11' into Syngenta Seeds, Inc. variety 'Topaz' using the backcrossing breeding method. 'ROG123R' was derived from a series of five backcrosses with 'Topaz' as the recurrent parent.

Details of the selection and multiplication are as follows:

Year	Gen.	Plot	Plot	No. SPS	Lbs.	Criteria
2000	BC5F1	Winter	00-GH9106-3			Bulk
2000	BC5F2	Summer	00-DB0209	7		SPS's based on pod load, plant architecture, maturity, and seed quality
2000	BC5F3	Fall/Winter	00-GH0209-6			Generation advance and seed increase
2001	BC5F4	Winter/Spring	01-GH0209-6			Generation advance and seed increase
2001	BC5F5	Summer	01-TFRPT04	10	11.6	Yield test & seed increase
2002	BC5F6	Summer	02-QD2707		291	Seed stock increase

ROG123R has been observed to be uniform and stable since the BC5F3 generation and has remained uniform and stable through the BC5F6. Stock 02-QD2707 is being increased to commercial size quanities. Seed stock will be monitored for purity. No variants have been observed since the BC5F3 generation.

Dry Edible Pinto Bean

'ROG123R'

Exhibit B

Novelty Statement

Syngenta Seeds, Inc. variety 'ROG123R' is most like the variety 'Topaz', but differs in the following way:

> 'ROG123R' has the Ur11 rust gene from the donor parent 'BelDakMi-RMR-11', 'Topaz' does not. This gene gives 'ROG123R' resistance to all known strains of bean rust, except race 108, whereas 'Topaz' only has resistance to the following races: 16, 23, 32, 75-22 (see Topaz PVP application for supporting material).

The following chart shows the differences between 'ROG123R' and 'UI 114':

Characteristic	Units	ROG123R	UI 114	Probability	Sample size
Maturity (90%)	days	83	84	NS	1
Flowering (50%)	days	44	46	NS	1
Plant ht.	cm.	78	90.4	0.0020	20
Pod Length	mm.	112.55	122.96	0.0000	20
Beak Length	mm.	8.00	10.28	0.0000	40
Pod Width	mm.	9.8	9.46	0.0243	20
Pod Depth	mm.	13.25	13.7	0.0103	20
Seeds/pod	no.	4.13	3.50	0.0149	40
Vine Length	in.	39.15	32.83	0.0019	40
Seeds/lb.	no.	1324	1314	NS	1

- ROG123R has a shorter plant height than UI 114 (78.0 vs. 90.4 cm).
- ROG123R has a shorter pod than UI 114(112.55 vs. 122.96 mm).
- ROG123R has a shorter beak than UI 114 (9.33 vs. 12.2 mm).
- ROG123R has a wider pod than UI 114 (9.8 vs. 9.46 mm).
- ROG123R has a smaller pod depth than UI 114 (13.25 vs. 13.7).
- ROG123R has more seed per pod than UI 114 (4.13 vs 3.50)
- ROG123R has longer vines than UI 114 (39.15 vs 32.83 in).
- ROG123R has the Ur11 gene for bean rust resistance whereas UI 114 has no rust resistance.

Data file: PVP_ROG123R
Title: PVP ROG123R vs. UI 114 2002

20050213

Function: T-TEST

SAMPLE ONE: ROG123R		SAMPLE TWO: UI 114	
Variable 1 : Plant Height(cm)		Variable 1 : Plant Height(cm)	
Cases 1 through 20		Cases 21 through 40	
Mean:	78.00	Mean:	90.35
Variance:	142.84	Variance:	134.13
Standard Deviation:	11.95	Standard Deviation:	11.58

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	1.0649
Numerator degrees of freedom:	19
Denominator degrees of freedom:	19
Probability:	0.8924

Result: Non-Significant F - Accept the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Pooled s squared:	138.4882
Variance of the difference between the means:	13.8488
Standard Deviation of the difference:	3.7214
t Value:	-3.3186
Degrees of freedom:	38
Probability of t:	0.0020

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
12.350 plus or minus 7.534 (4.816 through 19.884)

Data file: PVP_ROG123R
Title: PVP ROG123R vs. UI 114 2002

200500213

Function: T-TEST

SAMPLE ONE: ROG123R		SAMPLE TWO: UI 114	
Variable 2 : Pod Length(mm)		Variable 2 : Pod Length(mm)	
Cases 1 through 20		Cases 21 through 40	
Mean:	112.55	Mean:	122.96
Variance:	32.66	Variance:	39.25
Standard Deviation:	5.71	Standard Deviation:	6.27

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	1.2020
Numerator degrees of freedom:	19
Denominator degrees of freedom:	19
Probability:	0.6925

Result: Non-Significant F - Accept the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Pooled s squared:	35.9531
Variance of the difference between the means:	3.5953
Standard Deviation of the difference:	1.8961
t Value:	-5.4875
Degrees of freedom:	38
Probability of t:	0.0000

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
10.405 plus or minus 3.839 (6.566 through 14.244)

2003 and 2004 Plant Variety Protection
Beak Measurement T-Test for ROG123R vs UI 114

Data file: ROG123R
Title: **PVP for ROG123R vs. UI 114**

Function: T-TEST

SAMPLE ONE: **ROG123R**		SAMPLE TWO: **UI 114**	
Variable 1 : **Beak (mm)**		Variable 1 : **Beak (mm)**	
Cases 1 through 40		Cases 41 through 80	
Mean:	8.00	Mean:	10.28
Variance:	3.33	Variance:	5.59
Standard Deviation:	1.83	Standard Deviation:	2.36

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	1.6767
Numerator degrees of freedom:	39
Denominator degrees of freedom:	39
Probability:	0.1108

Result: Non-Significant F - Accept the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Pooled s squared:	4.4612
Variance of the difference between the means:	0.2231
Standard Deviation of the difference:	0.4723
t Value:	-4.8169
Degrees of freedom:	78
Probability of t:	0.0000

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
2.275 plus or minus 0.940 (1.335 through 3.215)

Data file: PVP_ROG123R
Title: PVP ROG123R vs. UI 114 2002

200500213

Function: T-TEST

SAMPLE ONE: ROG123R		SAMPLE TWO: UI 114	
Variable 4 : Pod Width(mm)		Variable 4 : Pod Width(mm)	
Cases 1 through 20		Cases 21 through 40	
Mean:	9.80	Mean:	9.46
Variance:	0.26	Variance:	0.17
Standard Deviation:	0.51	Standard Deviation:	0.41

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	1.5569
Numerator degrees of freedom:	19
Denominator degrees of freedom:	19
Probability:	0.3429

Result: Non-Significant F - Accept the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Pooled s squared:	0.2126
Variance of the difference between the means:	0.0213
Standard Deviation of the difference:	0.1458
t Value:	2.3454
Degrees of freedom:	38
Probability of t:	0.0243

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
0.342 plus or minus 0.295 (0.047 through 0.637)

Data file: PVP_ROG123R
Title: PVP ROG123R vs. UI 114 2002

Function: T-TEST

SAMPLE ONE: ROG123R		SAMPLE TWO: UI 114	
Variable 5 : Pod Depth(mm)		Variable 5 : Pod Depth(mm)	
Cases 1 through 20		Cases 21 through 40	
Mean:	13.25	Mean:	13.70
Variance:	0.43	Variance:	0.13
Standard Deviation:	0.66	Standard Deviation:	0.35

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	3.4412
Numerator degrees of freedom:	19
Denominator degrees of freedom:	19
Probability:	0.0098

Result: Significant F - Reject the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Variance of the difference between the means:	0.0278
Standard Deviation of the difference:	0.1668
t' Value:	-2.6982
Effective degrees of freedom:	29
Probability of t':	0.0103

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
0.450 plus or minus 0.341 (0.109 through 0.791)

2003 and 2004 Plant Variety Protection
Seed Per Pod T-Test for ROG123R vs UI 114

Data file: ROG123R
Title: **PVP for ROG123R vs. UI 114**

Function: T-TEST

SAMPLE ONE: **ROG123R**		SAMPLE TWO: **UI 114**	
Variable 3 : **Seed Per Pod**		Variable 3 : **Seed Per Pod**	
Cases 1 through 40		Cases 41 through 80	
Mean:	4.13	Mean:	3.50
Variance:	1.39	Variance:	1.13
Standard Deviation:	1.18	Standard Deviation:	1.06

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	1.2358
Numerator degrees of freedom:	39
Denominator degrees of freedom:	39
Probability:	0.5117

Result: Non-Significant F - Accept the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Pooled s squared:	1.2612
Variance of the difference between the means:	0.0631
Standard Deviation of the difference:	0.2511
t Value:	2.4889
Degrees of freedom:	78
Probability of t:	0.0149

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
0.625 plus or minus 0.500 (0.125 through 1.125)

2003 and 2004 Plant Variety Protection
Vine Length T-Test for ROG123R vs UI 114

Data file: ROG123R
Title: **PVP for ROG123R vs. UI 114**

Function: T-TEST

SAMPLE ONE: **ROG123R**		SAMPLE TWO: **UI 114**	
Variable 2 : **Vine Length(in)**		Variable 2 : **Vine Length(in)**	
Cases 1 through 40		Cases 41 through 80	
Mean:	39.15	Mean:	32.83
Variance:	128.99	Variance:	26.55
Standard Deviation:	11.36	Standard Deviation:	5.15

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	4.8592
Numerator degrees of freedom:	39
Denominator degrees of freedom:	39
Probability:	0.0000

Result: Significant F - Reject the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Variance of the difference between the means:	3.8884
Standard Deviation of the difference:	1.9719
t' Value:	3.2076
Effective degrees of freedom:	54
Probability of t':	0.0019

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
6.325 plus or minus 3.953 (2.372 through 10.278)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY
Field Bean (*Phaseolus vulgaris* L.)

NAME OF APPLICANT (S)	TEMPORARY OR EXPERIMENTAL DESIGNATION	VARIETY NAME
Syngenta Seeds, Inc.	**ROG123R**	**'Topaz R'**

ADDRESS *(Street and No. or RD No., City, State, Zip Code, and Country)*
600 N. Armstrong Place
Boise, ID 83704

FOR OFFICIAL USE ONLY

PVPO NUMBER
200500213

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Provide data for all characters unless indicated as "optional". Place numbers in the boxes for the characters or numerical values that best describe this variety. Measured data should be the mean of an appropriate number of well spaced (15-20 cm) plants. The Royal Horticultural Society or any recognized color standard may be used to determine plant color. Designate the color system used below.

COLOR SYSTEM USED:

LOCATION OF THE TEST(S) TO EVALUATE THIS VARIETY:
Southern Idaho: Twin Falls

1. MARKET CLASS:

[4]

CLASS	CHECK
1 = Navy (Pea)	Seafarer
2 = Small White	Aurora
3 = Black	Midnight
4 = Pinto	UI-114
5 = Great Northern	UI-59
6 = Small Red	NW-59
7 = Pink	Viva
8 = Cranberry	UI-50
9 = Dark Red Kidney	Montclaim
10 = Light Red Kidney	Redkloud
11 = Yellow Eye	Steuben
12 = Other (Specify _____	

2 = MATURITY:

[1] 1 = Early (80-90 days) 2 = Medium (90-100 Days) 3 = Late (> 100 Days)

[8][3] Days from Planting to Harvest Maturity

[ ][ ][ ][ ] Heat Units from Planting to Harvest Maturity (Optional). Specify Base Temperature Used: _____

[8][4] Days from Planting to Harvest Maturity of Check Variety (Use Check Appropriate to Market Class Shown in Item 1)

3. PLANT HABIT:

TYPE

- ☐ 1 = Ia Bush-determinate, Strong and Erect Stem and Branches
- ☐ 2 = Ib Bush-determinate, Weak Stem and Branches
- ☐ 3 = IIa Erect Growth Habit-indeterminate, Guides (Runners) short or not developed
- ☒ 4 = IIb Erect Growth Habit-indeterminate, Guides Medium to Long, with no Ability to Climb
- ☐ 5 = IIIa Vine-indeterminate, Short Guides with no ability to Climb
- ☐ 6 = IIIb Vine-indeterminate, Long Guides with Ability to Climb
- ☐ 7 = IVa Indeterminate Climbing, Pods Distributed Throughout the Plant
- ☐ 8 = IVb Indeterminate Climbing, Pods Concentrated on the Upper Part of the Plant

[7][8] Average Height of Mature Plant, in cm.

[9][0] Average Height of Check Variety, in cm. (Use Same Check as Above)

[3] Pod Position: 1 = Low (Lower Pods Touching Soil Surface) 2 = High (Lower Pods not Touching Soil Surface) 3 = Scattered (Not Concentrated High or Low)

[1] Adaptability to Machine Harvest: 1 = Adapted 2 = Not Adapted

[2] Lodging Resistance: 1 = Good 2 = Fair 3 = Poor

4. LEAFLET MORPHOLOGY: (Use terminal Leaflet of a Fully Expanded Trifoliolate)

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[2] 1 = Smooth 2 = Wrinkled

[1] 1 = Dull 2 = Glossy 3 = Semiglossy 4 = Variable

Shape: [1]

1 = Ovate

2 = Lanceolate

3 = Deltoid

4 = Cordate

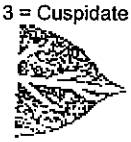
5 = Rhomboid

Apex of Leaflet: [2]

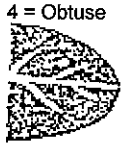
1 = Acute

2 = Acuminate

3 = Cuspidate



4 = Obtuse

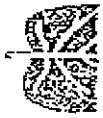


Base of Leaflet: [1]

1 = Obtuse

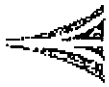
2 = Oblique

3 = Cordate



4 = Cuneate

5 = Attentuate



5. FLOWER COLOR AND DAYS TO BLOOM:

[1] Color of Standard: 1 = White 2 = Cream 3 = Pink 4 = Blue 5 = Purple

[1] Color of Keel: 1 = White 2 = Cream 3 = Pink 4 = Blue 5 = Purple

[1] Color of Wings: 1 = White 2 = Cream 3 = Pink 4 = Blue 5 = Purple

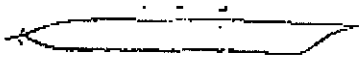
[4][4] Days to 50% Bloom

6. POD MORPHOLOGY: (Green Pod Morphology Optional)

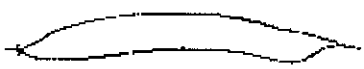
Green	Mature		
[1]	[2]	Color Pattern:	1 = Solid 2 = Striped 3 = Blotched 4 = Mottled 5 = Other _____
[3]	[5]	Primary Color:	1 = Purple 2 = Red 3 = Green 4 = Yellow 5 = Tan 6 = Brown 7 = Other _____
[3]	[3]	Color Modifier:	1 = Light 2 = Light Medium 3 = Medium 4 = Medium Dark 5 = Dark
[NA]	[2]	Secondary Color:	1 = Purple 2 = Red 3 = Green 4 = Yellow 5 = Tan 6 = Brown 7 = Other _____
[1]	[1]	Cross Section Shape:	1 = Flat 2 = Pear 3 = Round 4 = Figure Eight

[2] [2] Pod Curvature Upward

1 = Straight

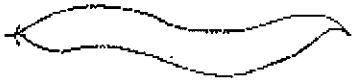


2 = Slightly Curved

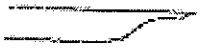


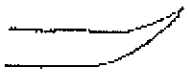
3 = Curved

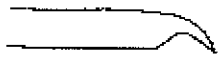
4 = Recurved



[3] [3] Pod Beak Orientation: 1 = Straight 2 = Curved Upward 3 = Curved Downward 4 = Variable







Average Beak Length, in cm. .933

[2] [3] Constrictions: 1 = None 2 = Slight 3 = Deep

[5] . [4] Average Number of Seeds per Pod

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7. SEED COLOR:

[3] 1 = Shiny 2 = Dull 3 = Semishiny 4 = Variable

[2] 1 = Monochrome 2 = Polychrome

[0 4] Primary Color: 1 = White 2 = Yellow 3 = Buff 4 = Tan 5 = Brown 6 = Pink 7 = Red 8 = Purple 9 = Blue 10 = Black 11 = Other _____

[0 5] Secondary Color: 1 = White 2 = Yellow 3 = Buff 4 = Tan 5 = Brown 6 = Pink 7 = Red 8 = Purple 9 = Blue 10 = Black 11 = Other _____

[3] Color Pattern: 1 = Solid 2 = Splashed 3 = Mottled 4 = Striped 5 = Flecked 6 = Dotted

[2] Hilar Ring: 1 = Absent 2 = Present

[0 2] Hilar Ring Color: 1 = White 2 = Yellow 3 = Buff 4 = Tan 5 = Brown 6 = Pink 7 = Red 8 = Purple 9 = Blue 10 = Black 11 = Other _____

8. SEED SHAPE AND WEIGHT:

[3] Shape of Seed Taken From Middle of Pod: 1 = Round 2 = Oval 3 = Cuboid 4 = Kidney 5 = Truncate Fastigate

[3 4] Dry Seed Weight in g/100g Seeds (Adjusted to 12% Moisture)

9. ANTHOCYANIN PIGMENTATION:

1 = Absent
2 = Present

[1] Flowers [2] Stems [2] Pods [2] Seeds

[1] Leaves [2] Petioles [1] Peduncles [1] Nodes

Slight

10. KNOWN DISEASE REACTION:

DISEASES – COMMON NAME: Anthracnose, Rust, Powdery Mildew, Fusarium Root Rot, Pythium Root Rot, Rhizoctonia Root Rot, Pythium Wilt, Sclerotinia White Mold, angular Leaf Spot, Bacterial Wilt, Halo Blight, Fuscous Blight, Common Bacterial Blight, Red Node Virus, Pod Mottle Virus, Bean Common Mosaic Virus, Bean Yellow Mosaic Virus, Curly Top Virus, Bacterial Brown Spot, Bean Southern Mosaic Virus, Other (Specify) _____

Reaction: 1 = Susceptible 2 = Resistant 3 = Tolerant 4 = Avoidance

(Give the Common Name (CN), Scientific Name (SN), and Race(s), Where Applicable)

[2] Disease: CN **Bean Common Mosaic Virus**; SN _____; Race(s) **NL8**;

[2] Disease: CN **Bean Rust**; SN _____; Race(s) **All known races except 108**;

[NA] Disease: CN _____; SN _____; Race(s) _____;

[NA] Disease: CN _____; SN _____; Race(s) _____;

[NA] Disease: CN _____; SN _____; Race(s) _____;

[NA] Disease: CN _____; SN _____; Race(s) _____;

11. KNOWN INSECT/NEMATODE RESISTANCE:

PESTS – COMMON NAME: Aphids, Bean Pod Weevil, Bruchid Beetle, Corn Earworm, Flea Beetle, Leaf Hopper, Lesion Nematode, Lygus, Mexican Bean Beetle, Root Know Nematode, Corn Seed Maggot, Spider Mites, Thrips, Weevils, Western Bean Cutowrm, Other (Specify) _____

Reaction: 1 = Susceptible 2 = Resistant 3 = Tolerant 4 = Avoidance

(Give the Common Name (CN), Scientific Name (SN), and Race(s), Where Applicable)

[NA] Pest: CN _____; SN _____; Race(s) _____;

[NA] Pest: CN _____; SN _____; Race(s) _____;

[NA] Pest: CN _____; SN _____; Race(s) _____;

12. KNOWN PHYSIOLOGICAL STRESS REACTION:

1 = Susceptible 2 = Resistant
3 = Tolerant 4 = Avoidance

[NA] Heat [NA] Cold [NA] Drought [NA] Air Pollution

13. COMMENTS:

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Dry Edible Pinto Bean

'ROG123R'

Exhibit D

Botanical Description

Dry edible pinto bean 'ROG123R' is an early season variety that matures in 83 days in Idaho. It has a medium vine plant habit (type IIb, CIAT classification) and flowers in 44 days. It has good branching and pod set is scattered up the plant.

The leaves are wrinkled, dull, ovate with acuminate apices, and mostly obtuse leaf bases.

Flowers are white, and pods are green which turn tan with red striping at maturity.

The seeds are plump and average 34 g per 100 seeds.

ROG123R has pods averaging 113 mm in length and 5.4 seeds per pod.

ROG123R is resistant to Bean Common Mosaic Virus strain NL8.

ROG123R is resistant to all known races of Bean Rust except race 108.

ROG123R is adapted to the growing areas of Idaho, North Dakota, and Manitoba, Canada.

REPRODUCE LOCALLY. Include form number and edition date on all reproductions. FORM APPROVED - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued *(7 U.S.C. 2421)*. The information is held confidential until the certificate is issued *(7 U.S.C. 2426)*.

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
Syngenta Seeds, Inc.	ROG123R	Topaz R
4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	**5. TELEPHONE** *(Include area code)*	**6. FAX** *(Include area code)*
600 N Armstrong Place Boise, ID 83704	208-322-7272	208-327-9319
	7. PVPO NUMBER 200500213	

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. **If no, please explain.** ☒ **YES** ☐ **NO**

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? **If no, give name of country.** ☒ **YES** ☐ **NO**

10. Is the applicant the original owner? ☒ **YES** ☐ **NO** **If no, please answer ~~one~~ of the following:**

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
☐ **YES** ☐ **NO** **If no, give name of country**

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
☐ **YES** ☐ **NO** **If no, give name of country**

11. Additional explanation on ownership *(Trace ownership from original breeder to current owner. Use the reverse for extra space if needed)*:

The dry edible pinto bean ROG123R was bred and developed by plant breeders employed by Syngenta Seeds, Inc. By agreement between the employee and Syngenta Seeds, Inc. all rights to any invention, discovery, or development made by the employee while employed by Syngenta Seeds, Inc. were assigned to Syngenta Seeds, Inc. with no rights retained by the employee.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.